

04/02/16, PARCC EOY Geometry #4

Student: \_\_\_\_\_

Class: \_\_\_\_\_

Date: \_\_\_\_\_

1. Triangle  $APQ$  is the image of  $\triangle ABC$  under a dilation centered at vertex  $A$  with scale factor  $\frac{1}{2}$ .

Triangle  $RBT$  is the image of  $\triangle ABC$  under a dilation centered at vertex  $B$  with scale factor  $\frac{3}{4}$ .

Which statement about  $\triangle ABC$ ,  $\triangle APQ$ ,  $\triangle RBT$  is correct?

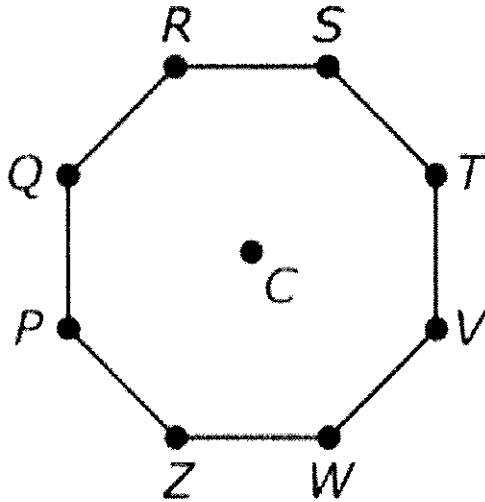
- A. All three triangles are similar.
- B. None of the triangles are similar.
- C. Triangles  $APQ$  and  $RBT$  are not similar because they were dilated using different scale factors.
- D. Triangles  $APQ$  and  $RBT$  are not similar because they were dilated with different centers of dilation.

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1. Octagon  $PARSTVWZ$  is a regular octagon with its center at point  $C$ .



Which transformations will map octagon  $PQRSTVWZ$  onto itself?

Select **each** correct transformation.

- A. reflecting over  $\overline{QV}$
- B. reflecting over  $\overline{RW}$
- C. reflecting over  $\overline{TZ}$
- D. rotating  $45^\circ$  clockwise around point  $Z$
- E. rotating  $135^\circ$  clockwise around point  $C$
- F. rotating  $90^\circ$  counterclockwise around point  $C$

2. A dilation with center at  $P(0, 0)$  and a scale factor  $k$  is applied to  $\overline{MN}$ . Let  $\overline{M'N'}$  represent the image of  $\overline{MN}$  after the dilation.

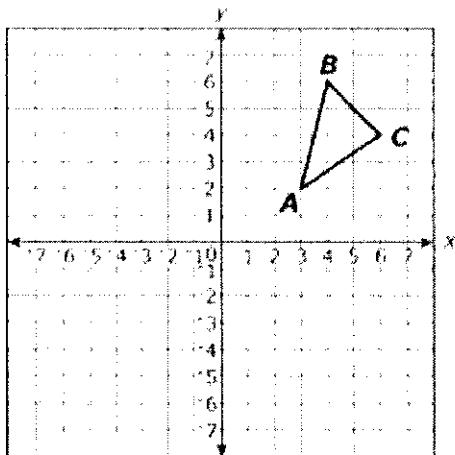
Select **each** correct statement.

- A. If  $k > 0$ , then  $M'N' > MN$ .
- B. If  $k > 1$ , then  $M'N' > MN$ .
- C. If  $0 < k < 1$ , then  $M'N' < MN$ .
- D. If  $0.5 < k < 1.5$ , then  $M'N' < MN$ .
- E. If  $k = 1$ , then  $M'N' = MN$ .
- F. If  $k = 0.5$ , then  $M'N' = 0.5(MN)$ .

3. Triangle  $ABC$  is graphed in the  $xy$ -coordinate plane, as shown.

Complete each of the following 2 activities (A - B) for Question 3.

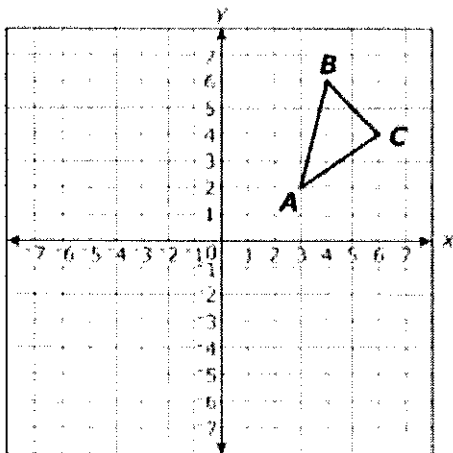
3A.



Triangle  $ABC$  is reflected across the  $x$ -axis to form triangle  $A'B'C'$ . What are the coordinates of  $C'$  after the reflection?

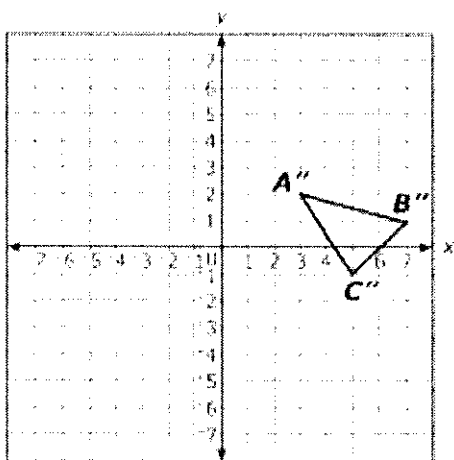
- A.  $(-6, 4)$
- B.  $(3, -2)$
- C.  $(4, -6)$
- D.  $(6, -4)$

3B.

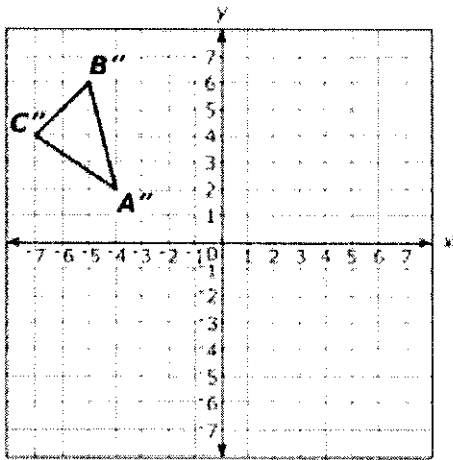


Triangle ABC in the xy-coordinate plane will be rotated  $90^\circ$  counterclockwise about point A to form a triangle  $A''B''C''$ . Which graph represents  $A''B''C''$ ?

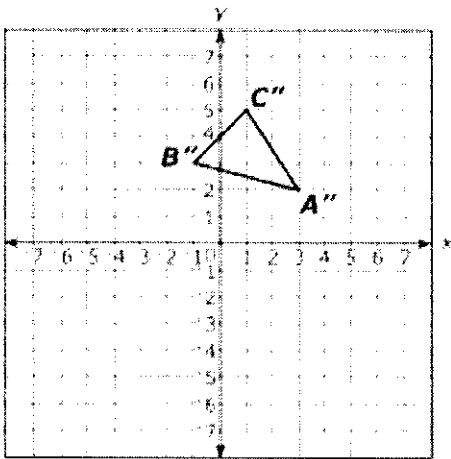
A.



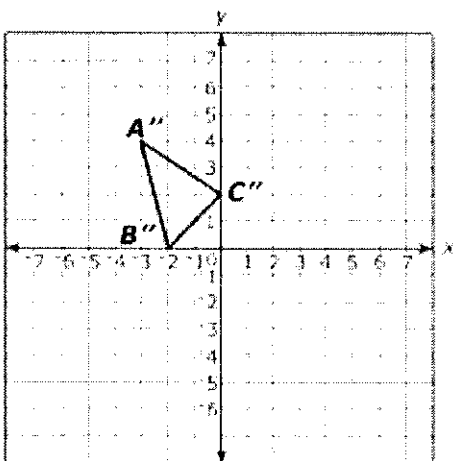
B.



C.

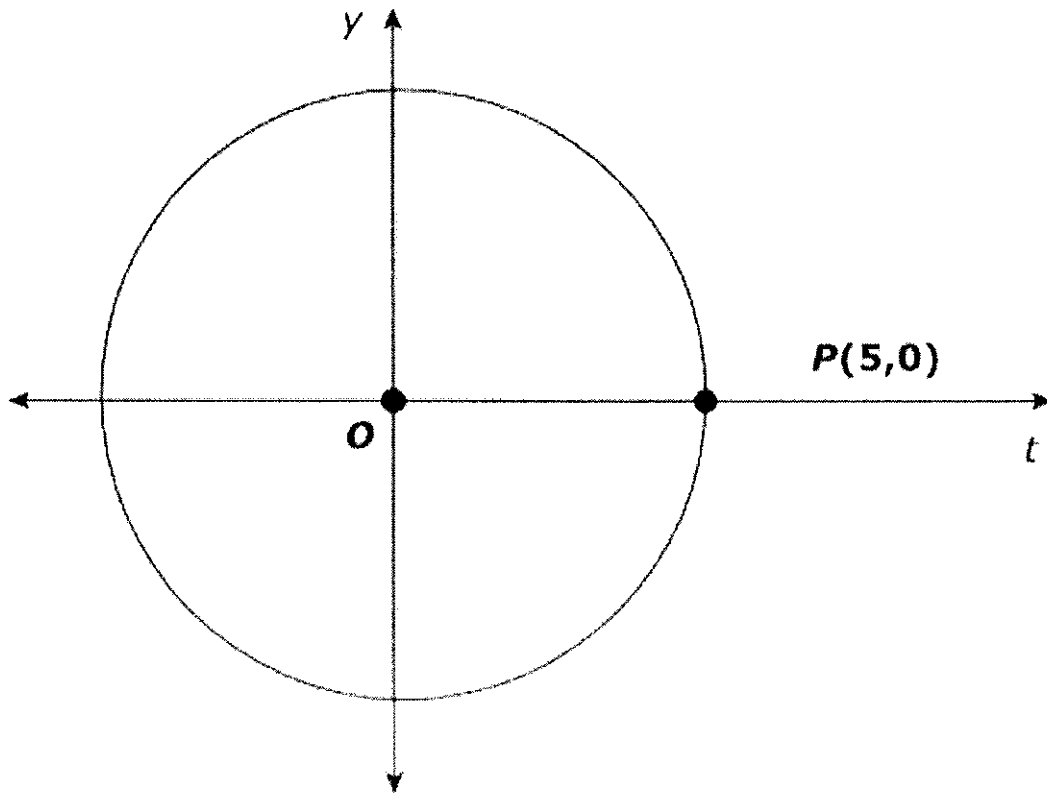


D.



3. A merry-go-round is set up at a local fair. The merry-go-round moves continuously at a rate slow enough for riders to step on and off of the ride. The pink horse, P, moves along the circumference of the ride.

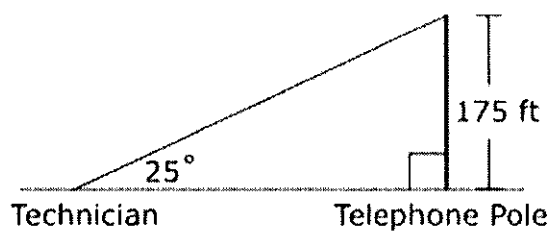
Hal used a coordinate grid to make a rough sketch of the merry-go-round, with the center at the origin. Initially, P is at  $P(5,0)$ . It takes 30 seconds for P to return to the same place.



Each unit = 1 foot

What is the rate at which the merry-go-round is turning, in feet per minute?

5. A maintenance technician sights the top of a telephone pole at a  $25^\circ$  angle of elevation as shown.



Determine the horizontal distance between the technician and the base of the telephone pole to the nearest tenth of a foot.